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AHMED, SALMAN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/024,687	Applicant(s) CLEVELAND ET AL.	
	Examiner Salman Ahmed	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 9/28/2007(RCE).

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 37-68 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 37-44,46-56 and 58-68 is/are rejected.

7)☒ Claim(s) 45 and 57 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 4/7/2006 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 37-68 are pending.

Claims 37-44, 46-56 and 58-68 are rejected.

Claims 45 and 57 are objected to.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 37-41 and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Felix et al. (US Pat 5,966,384), in view of Das et al. (US PAT PUB 20020152342, hereinafter Das), Coverdale et al. (US PAT 6373842, hereinafter

Coverdale), Chen et al. (US PAT 6535739, hereinafter Chen) and Chang (US PAT PUB 2001/0030953).

Regarding claims 37 and 49, Felix et al. *teach for use in a wireless network communications system, a method and an apparatus for increasing a data transmission rate in a mobile wireless communication channel during hand off* (See Fig. 6, Felix et al.), *method and apparatus comprising the steps of: sending data packets from a base station to a mobile station on a first channel at a first data rate,* (Felix et al. teach sending the data from base station at a first data rate on the first bandwidth as the supplemental channel. See col 4, lines 1-30.) *receiving a negative acknowledgment signal from said mobile station that said mobile station failed to correctly receive at least one data packet* (See col 4, lines 42-54.) *sending at least one replacement data packet to mobile station on second channel at a second data rate* (While the interruption or timeout occurs, retransmission would utilize the fundamental channel, which would be considered as second channel at a second data rate. See col 4, lines 1-50).

Felix et al. does not specifically teach *retransmitting data on the second data rate which is higher than the first data rate.*

Das in the same field of endeavor teaches transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted (page 5 lines 1-14).

it would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Felix's system/method by incorporating the steps of retransmitting data on the second data rate which is higher than the first data rate as suggested by Das. The motivation is that (as suggested by Das, page 1, section 0007) if the channel conditions improve between the time of the initial transmission and the re-transmission, the re-transmission will likely be inefficiently utilized if same or lower data rate is being used. As such in such scenario a higher data rate can be used for the efficient re-transmission.

Felix and Das do not explicitly teach *a replacement data packet controller capable of receive at least one replacement data packet to replace an error or missing packet.*

Coverdale in the same field of endeavor teaches that once the retransmitted frame 125 is received as frame 145, the system (the controller 290) checks no errors are received in the retransmitted frame 145. If so, and if there is time in the buffer delay prior to the speech frames being delivered, the received frame 145 is placed into location 202 replacing the errored frame 142 (column 6 lines 1-10).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Felix and Das' system/method by incorporating the steps of a replacement data packet controller capable of receive at least one replacement data packet to replace an error or missing packet as suggested by Coverdale. The motivation Is that (as suggested by Coverdale, columns 1-2 lines 65-7) the conventional method of providing unidirectional streaming services is susceptible to drop-outs and

short interruptions of the radio channel caused by interference, multipath fading and blocking type wireless transmission impairments. While extrapolation of corrupted data often improves quality compared to simply converting the corrupted data into speech, the speech quality is still degraded. Therefore, there is a need for improving the reception quality of unidirectional streaming services data in wireless systems by using Coverland's step of receiving at least one replacement data packet to replace an error or missing packet. Such method will enable a network to provide 0000000er quality and reliable data communication among network elements.

Felix, Das and Coverdale do not explicitly teach receiving message from a second base station to increase a bandwidth to mobile station.

Chen in the same field of endeavor teaches one or more of the single carrier base stations BS1 that is receiving transmissions from the remote station generates a message containing power control information related to the remote station in question. The information can be as simple as whether the remote station should lower its power, or it can contain more detailed information on the signal being received from the remote station in question. The single carrier base stations send these messages via the infrastructure backhaul to one or more multi-carrier base stations that are communicating with the remote station (columns 19-20 lines 60-14). Chen further teaches multi-carrier base stations then communicate with the remote station at a higher rate then a single carrier base station after the communication exchange between them (column 14 lines 15-40).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Felix, Das and Coverdale's system/method by incorporating the steps of receiving message from a second base station to increase a bandwidth to mobile station as suggested by Chen. The motivation is that such message enables the receiving base station to accurately and reliably adjust It's parameters related to communication with the remote; thus accomplishing efficient communication.

Felix, Das, Coverdale and Chen do not explicitly teach using A3 physical transition directive messages between base stations.

Chang in the same field of endeavor teaches an A3 interface is for a soft/softer handoff between the base stations, and is used for an exchange of signaling data and user traffic between frame selection functions of the target base station 40 and the source base station 30 (section 0008).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Felix, Das, Coverdale and Chen's system/method by incorporating the steps of using A3 messages between base stations as suggested by Chang. The motivation is that, an A3 interface is for a soft/softer handoff between the base stations, and is used for an efficient and reliable exchange of signaling data and user traffic between frame selection functions of the target base station and the source base station (as suggested by Chang, section 0008) Although, Felix, Das, Coverdale and Chen in view of Chang teach all the limitations of claim 37, the phrase, "capable of" does not require all of the details that follow it, in other words, the base stations of Felix,

Das, Coverdale and Chen in view of Chang do not require to explicitly show/do all the steps of limitations of the claims, as long as they are capable of doing the steps. The base stations in Felix, Das, Coverdale and Chen in view of Chang's teaching have all the necessary components of a base station as it is known by one of ordinary skill in the art. That is, the base stations in Felix, Das, Coverdale and Chen in view of Chang have encoders, transmitters, receivers, antenna, processors, memory etc. As such Felix, Das, Coverdale and Chen in view of Chang's base stations are "capable of" doing all the steps of the any limitations of present claim if it is programmed and configured to do so. Applicants current claim is capable of stated limitations. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be capable of doing so.

In regards to claim 38 and 50 Felix et al. does not specifically teach base station is capable of receiving an acknowledgment signal from mobile station that mobile station has received at least one replacement data packet from said base station, and wherein in response to receiving acknowledgment signal base station is further capable of: ceasing sending at least one replacement data packet on second channel at second higher data rate, which is higher than first data rate; and sending data packets to said mobile station on first channel at first data rate

In regards to claim 38 and 50, Das teaches base station is capable of receiving an acknowledgment signal from mobile station that mobile station has received at least one replacement data packet from said base station, and wherein in response to receiving acknowledgment signal base station is further capable of: ceasing sending

at least one replacement data packet on second channel at second higher data rate, which is higher than first data rate; and sending data packets to said mobile station on first channel at first data rate (page 1 sections 0005-0007 and page 5 lines 1-14, data transmission from the base station to a particular receiver occurs when that receiver reports the highest calculated data rate to the base station. The following protocol is utilized in data transmissions. The base station transmits data to the receiver in time slot n at the calculated data rate. The receiver receives the data transmission and responds with an ACK/NACK message indicating to the base station whether the data transmission was successfully received, i.e., no errors, by the receiver. Specifically, if the data transmission is successfully received, the receiver responds with an acknowledgement or ACK. Otherwise the receiver responds with a negative acknowledgement or NACK. The ACK/NACK message is received by base station in time slot n+j, wherein j is some known time offset. Thus, the base station can determine that an ACK/NACK message was transmitted from a receiver to which data was transmitted j time slots prior to receipt of the ACK/NACK message. If an ACK was received, the base station knows that the data transmission to the associated receiver was successful. If a NACK was received, the base station knows that the data transmission to the associated receiver was unsuccessful. In response to the NACK, the base station re-transmits, at the same data rate, the same data which was earlier transmitted. The base station further transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the

data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted). Claim 38 utilizes the language, "capable of" for describing base station functionality. It is not clear as to the steps of limitations are actually being implemented by the base station or the base station is merely "capable of" implementing the steps but not implementing them. Although, Das teaches all the limitations of claim 38, the phrase, "capable of" does not require all of the details that follow it, in other words, the base stations of Das do not require to explicitly show/do all the steps of limitations of the claims, as long as they are capable of doing the steps. The base station in Das' teaching has all the necessary components of a base station as it is known by one of ordinary skill in the art. That is, the base station in Das has encoders, transmitters, receivers, antenna, processors, memory etc. As such Das' base station is "capable of" doing all the steps of the any limitations of present application if it is programmed and configured to do so. Applicants current claim is "capable of" stated limitations. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be "capable of" doing so.

it would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Felix's system/method by incorporating the steps of base station is capable of receiving an acknowledgment signal from mobile station that mobile station has received at least one replacement data packet from base station, and wherein in response to receiving acknowledgment signal base station is further capable of: ceasing sending at least one replacement data packet on second channel

at second higher data rate, which is higher than first data rate; and sending data packets to mobile station on first channel at first data rate as suggested by Das. The motivation is that for efficient and reliable transmission, based on the channel conditions. a system can choose any arbitrary data rate to transmit data i.e. a system either can send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload; thus, efficiently and reliably allowing for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth.

Regarding claims 39 and 51, Felix teaches channel could fundamental channel or supplemental channel (See Fig. 1, Felix).

In regards to claims 40, 41, 52 and 53, Felix, Das, Coverdale, Chen and Chang do not explicitly teach first data rate on first channel is fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel is greater than fourteen and one tenths kilobits/seventy two per second.

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Felix, Das, Coverdale, Chen and Chang's system/method by incorporating the steps of implementing first data rate on first channel being fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel being greater than fourteen and one tenths kilobits/seventy two per second. The motivation is that based on the channel conditions a system can choose any arbitrary data rate to transmit data. A system either can send data at a rate either

faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth. Fourteen and one tenths kilobits/seventy two per second are arbitrary data rates that a system can choose for efficient transmission.

4. Claims 42-44, 46-48, 54-56, 58, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Das et al. (US PAT PUB 20020152342, hereinafter Das) in view of Kubota (US PAT PUB 2001/0007819), Chang (US PAT PUB 2001/0030953) and Coverdale.

In regards to claims 42, 43, 54 and 55, Das *teaches a base station* (being capable of) *receiving a negative acknowledgment signal from mobile station that mobile station failed to correctly receive at least one data packet* (page 1 sections 0005-0007, data transmission from the base station to a particular receiver occurs when that receiver reports the highest calculated data rate to the base station. The following protocol is utilized in data transmissions. The base station transmits data to the receiver in time slot n at the calculated data rate. The receiver receives the data transmission and responds with an ACK/NACK message indicating to the base station whether the data transmission was successfully received, i.e., no errors, by the receiver. Specifically, if the data transmission is successfully received, the receiver responds with an acknowledgement or ACK. Otherwise the receiver responds with a negative

acknowledgement or NACK); *wherein base station* (being capable of) *sending at least one replacement data packet to mobile station on second channel at a second data rate, which is higher than first data rate; and wherein at least one replacement data packet replaces one of: a missing data packet and an error data packet* (page 5 lines 1-14, The base station further transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted). Das teaches *first base station (is capable of) receiving an acknowledgment signal from mobile station that said mobile station has received at least one replacement data* (page 1 sections 0005-0007, data transmission from the base station to a particular receiver occurs when that receiver reports the highest calculated data rate to the base station. The following protocol is utilized in data transmissions. The base station transmits data to the receiver in time slot n at the calculated data rate. The receiver receives the data transmission and responds with an ACK/NACK message indicating to the base station whether the data transmission was successfully received, i.e., no errors, by the receiver. Specifically, if the data transmission is successfully received, the receiver responds with an acknowledgement or ACK (no retransmission takes place, as in claims 43 and 55). Otherwise the receiver responds with a negative acknowledgement or NACK).

Das not explicitly teach a hand-off scenario i.e. during hand-off first source base station communicates to the mobile station via target base station and receives communication from the mobile station via target base station.

Kubota in the same field of endeavor teaches for use in a wireless network communications system, an apparatus during handing off, apparatus comprising: a first base station (figure 1 element 11 sub. 1) (capable of) sending data packets to a second base station (figure 1 element 11 sub. 2) on a first channel at a first data rate (page 1 section 0010, the downstream user information from mobile switching center 13 is transmitted via inter-base-station line 16 from first base station 11.sub.1 to second base station 11.sub.2); wherein second base station (is capable of) sending data packets to a mobile station on a second channel (page 1 section 0010, the downstream user information from mobile switching center 13 is transmitted via inter-base-station line 16 from first base station 11.sub.1 to second base station 11.sub.2, from which the downstream user information is also transmitted through a radio link to mobile station 17).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Das' system/method by incorporating the steps of hand-off, i.e. source base station sending and receiving user information from the mobile station via target base station as suggested by Kubota. The motivation is that, hand-off is an integral part of wireless communication and implementing features in an hand-off scenario is imperative to make a network reliable and user friendly. Although, Das and Kubota teach all the limitations of claim 42, the phrase, "capable of" does not require all

of the details that follow it, in other words, the base stations of Das and Kubota do not require to explicitly show/do all the steps of limitations of the claims, as long as they are capable of doing the steps. The base stations in Das and Kubota's teaching have all the necessary components of a base station as it is known by one of ordinary skill in the art. That is, the base stations in Das and Kubota have encoders, transmitters, receivers, antenna, processors, memory etc. As such Das and Kubota's base stations are "capable of" doing all the steps of the any limitations of present claim if it is programmed and configured to do so. Applicants current claim is "capable of" stated limitations. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be "capable of" doing so.

Furthermore, in regards to claim 42 and 54 Das and Kubota do not explicitly teach using A3 physical transition directive messages between base stations. in regards to claim 44 and 56 Das and Kubota do not explicitly teach A3 physical transition directive messages contain information comprising one of: an element identifier, a length, a data rate and an action time.

Chang in the same field of endeavor teaches an A3 interface is for a soft/softer handoff between the base stations, and is used for an exchange of signaling data and user traffic between frame selection functions of the target base station 40 and the source base station 30 (section 0008). Chang in the same field of endeavor further teaches A3 physical transition directive messages contain information comprising one of: an element identifier, a length, a data rate and an action time (Figures 6-7I).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Das and Kubota's system/method by incorporating the steps of using A3 messages comprising one of: an element identifier, a length, a data rate and an action time, between base stations as suggested by Chang. The motivation is that, an A3 interface is for a soft/softer handoff between the base stations, and is used for an efficient and reliable exchange of signaling data and user traffic between frame selection functions of the target base station and the source base station (as suggested by Chang, section 0008) Although, Das and Kubota in view of Chang teach all the limitations of claim 42, the phrase, "capable of" does not require all of the details that follow it, in other words, the base stations of Das and Kubota in view of Chang do not require to explicitly show/do all the steps of limitations of the claims, as long as they are capable of doing the steps. The base stations in Das and Kubota in view of Chang's teaching have all the necessary components of a base station as it is known by one of ordinary skill in the art. That is, the base stations in Das and Kubota in view of Chang have encoders, transmitters, receivers, antenna, processors, memory etc. As such Das and Kubota in view of Chang's base stations are "capable of" doing all the steps of the any limitations of present claim if it is programmed and configured to do so. Applicants current claim is capable of stated limitations. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be capable of doing so.

Das, Kubota and Chang do not explicitly teach sending a message to cause to decrease bandwidth of mobile station in second channel and sending data packets to mobile station at decreased data rate in first channel as in claims 42 and 54.

Coverdale in the same field of endeavor teaches a control channel will preferably operate in real-time or near real-time to minimize delays. The control channel should be defined as logically distinct from the streaming information (and should by-pass the transmit and receiver buffers). The control and streaming channels can be multiplexed on a single physical channel or use two distinct channels (e.g., fundamental and supplemental channel in cdma2000. The streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth (column 9 lines 46-52 and column 10 lines 11-20).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Das, Kubota and Chang's system/method by incorporating the steps of teach sending a message to cause to decrease bandwidth of mobile station in second channel and sending data packets to mobile station at decreased data rate in first channel as suggested by Coverdale. The motivation is that (as suggested by Coverdale, column 10 lines 11-20 and column 9 lines 46-52) control channel operates in real-time or near real-time and defined as logically distinct from the streaming information and by-pass the transmit and receiver buffers; thus minimizing

delay and making the transmission of control information efficient. Further, increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth and making use of additional channels at variable rate makes the system reliable and efficient.

In regards to claims 47, 48, 59 and 60 Das, Kubota, Chang and Coverdale do not explicitly teach first data rate on first channel is fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel is greater than fourteen and one tenths kilobits/seventy two per second.

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Das, Kubota, Chang and Coverdale's system/method by incorporating the steps of implementing first data rate on first channel being fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel being greater than fourteen and one tenths kilobits/seventy two per second. The motivation is that for efficient and reliable transmission, based on the channel conditions. a system can choose any arbitrary data rate to transmit data i.e. a system either can send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload; thus, efficiently and reliably allowing for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth. Furthermore, fourteen and one tenths kilobits/seventy two per second are arbitrary data rates that a system can choose for efficient transmission.

Regarding claims 46 and 58 Das, Kubota and Chang do not explicitly teach first channel and second channel are one of: a fundamental channel, a first supplemental channel, a second supplemental channel, the same supplemental channel and the first supplemental channel with an increased bandwidth.

Coverdale in the same field of endeavor teaches first channel and second channel are one of: a fundamental channel, a first supplemental channel, a second supplemental channel, the same supplemental channel and the first supplemental channel (column 10 lines 11-20, Such a control channel will preferably operate in real-time or near real-time to minimize delays. The control channel should be defined as logically distinct from the streaming information (and should by-pass the transmit and receiver buffers). The control and streaming channels can be multiplexed on a single physical channel or use two distinct channels (e.g., fundamental and supplemental channel in cdma2000) with an increased bandwidth (column 9 lines 46-52, the streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth.

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Das, Kubota and Chang's system/method by incorporating the steps of first channel and second channel are one of: a fundamental channel, a first supplemental channel, a second supplemental

channel, the same supplemental channel and the first supplemental channel with an increased bandwidth as suggested by Coverdale. The motivation is that (as suggested by Coverdale, column 10 lines 11-20 and column 9 lines 46-52) control channel operates in real-time or near real-time and defined as logically distinct from the streaming information and by-pass the transmit and receiver buffers; thus minimizing delay and making the transmission of control information efficient. Further, increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth and making use of additional channels at variable rate makes the system reliable and efficient.

5. Claims 61-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coverdale in view of Das and Chen.

In regards to claim 61, Coverdale teaches *for use in a wireless network communications system, an apparatus for use in a mobile, apparatus comprising: a main controller* (the controller 290); *a replacement data packet acquisition application executable by main controller, replacement data packet acquisition application capable of acquiring at least one replacement data packet from a base station; and a replacement data packet integration application executable by main controller, replacement data packet integration application capable of integrating at least one replacement data packet from base station into a data packet stream to replace one of: a missing data packet and an error data packet* (column 7 lines 1-12, The controller 290 generates a retransmission request whenever it receives a notification from the FEC

decoder 270 that a frame was received in error. This request is then transmitted via the radio frequency block 260 and the antenna 250 to the wireless network. The controller 290 waits for the retransmitted frame to be received and demodulated and error decoded. If the requested frame is received without error in time to replace the errored frame in the playback buffer 200, then the controller 290 replaces the errored frame with the received retransmitted frame, prior to delivery to the speech decoder 280. Otherwise, the controller preferably replaces the errored frame by interpolating the previous and succeeding frames prior to delivery to the speech decoder 280); *wherein apparatus is capable of: receiving data packets from a base station on a first channel at a first data rate* (column 5 lines 42-49, Speech frames are then transmitted to the wireless terminal. The speech frames received by the wireless terminal 140 are shown to include frames 141, 142, 143, 144, 145 and 146); *sending a negative acknowledgment signal to base station that mobile station failed to correctly receive at least one data packet* (column 6 lines 58-67, The terminal also includes a frame repeat request controller 290 which would typically include a microprocessor and associated memory for storing software instructions for controlling the terminal and for carrying out the method steps as disclosed herein. The controller 290 is notified of any detected errors by the FEC decoder 270. The controller 290 also controls the delivery of the speech frames stored in the playback buffer 200 and also replaces frames in the playback buffer which were received in error. The controller 290 generates a retransmission request whenever it receives a notification from the FEC decoder 270 that a frame was received in error. This request is then transmitted via the radio

frequency block 260 and the antenna 250 to the wireless network); *receiving at least one replacement data packet from base station on a second channel* (column 7 lines 1-12 and column 10 lines 20-30, The controller 290 waits for the retransmitted frame to be received and demodulated and error decoded. If the requested frame is received without error in time to replace the errored frame in the playback buffer 200, then the controller 290 replaces the errored frame with the received retransmitted frame, prior to delivery to the speech decoder 280. Retransmitted frames can optionally be transmitted as packets on a secondary channel, for example, the control channel, to quickly replace the errored frame without varying the normal transmission rate. In this case the transmitter will respond to retransmission requests by transmitting requested frames on the secondary channel and the receiver would monitor the secondary channel for the retransmitted frames). Converdate further teaches (column 9 lines 46-52), the streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth.

Coverdale does not specifically teach *retransmitting data on the second data rate which is higher than the first data rate and after sending the acknowledgment signal apparatus is further capable of ceasing to send at least one replacement data packet on second channel.*

Das in the same field of endeavor teaches transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted (page 5 lines 1-14). Das teaches (page 1 sections 0005-0007 and page 5 lines 1-14) data transmission from the base station to a particular receiver occurs when that receiver reports the highest calculated data rate to the base station. The following protocol is utilized in data transmissions. The base station transmits data to the receiver in time slot n at the calculated data rate. The receiver receives the data transmission and responds with an ACK/NACK message indicating to the base station whether the data transmission was successfully received, i.e., no errors, by the receiver. Specifically, if the data transmission is successfully received, the receiver responds with an acknowledgement or ACK. Otherwise the receiver responds with a negative acknowledgement or NACK. The ACK/NACK message is received by base station in time slot n+j, wherein j is some known time offset. Thus, the base station can determine that an ACK/NACK message was transmitted from a receiver to which data was transmitted j time slots prior to receipt of the ACK/NACK message. If an ACK was received, the base station knows that the data transmission to the associated receiver was successful. If a NACK was received, the base station knows that the data transmission to the associated receiver was unsuccessful. In response to the NACK, the base station re-transmits, at the same data

rate, the same data which was earlier transmitted. The base station further transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted.

it would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Coverdale's system/method by incorporating the steps of retransmitting data on the second data rate which is higher than the first data rate and stop transmission after successful ACK as suggested by Das. The motivation is that (as suggested by Das, page 1, section 0007) if the channel conditions improve between the time of the initial transmission and the re-transmission, a higher data rate can be used for the efficient and reliable re-transmission during re-transmission period. Further motivation is that (as suggested by Coverdale, column 9 lines 46-52), increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth and making use of additional channels at variable rate makes the system reliable and efficient. Although, Coverdale and Das teach all the limitations of claim 61, the phrase, "capable of" does not require all of the details that follow it, in other words, the base stations of Coverdale and Das do not require to explicitly show/do all the steps of limitations of the claims, as long as they are capable of doing the steps. The base stations in Coverdale and Das' teaching have all the necessary components of a base station as it is known by one of

ordinary skill in the art. That is, the base stations in Coverdale and Das have encoders, transmitters, receivers, antenna, processors, memory etc. As such Coverdale and Das's base stations are "capable of" doing all the steps of the any limitations of present claim if it is programmed and configured to do so. Applicants current claim is "capable of" stated limitations. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be "capable of" doing so.

Coverdale and Das do not explicitly teach mobile station communicating via second base station, the transmitting status of the first base station.

Chen in the same field of endeavor teaches one or more of the single carrier base stations BS1 that is receiving transmissions from the remote station generates a message containing power control information related to the remote station in question. The information can be as simple as whether the remote station should lower its power, or it can contain more detailed information on the signal being received from the remote station in question. The single carrier base stations send these messages via the infrastructure backhaul to one or more multi-carrier base stations that are communicating with the remote station (columns 19-20 lines 60-14). Chen further teaches multi-carrier base stations then communicate with the remote station at a higher rate then a single carrier base station after the communication exchange between them (column 14 lines 15-40).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Coverdale and Das' system/method by incorporating the

steps of mobile station communicating via second base station, the transmitting status of the first base station as suggested by Chen. The motivation is that such message enables the transmitting base station during hand-off, to accurately and reliably adjust It's parameters related to communication with the remote; thus accomplishing efficient communication.

In regards to claims 63 and 64 Coverdale, Das and Chen do not explicitly teach first data rate on first channel is fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel is greater than fourteen and one tenths kilobits/seventy two per second.

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Coverdale, Das and Chen's system/method by incorporating the steps of implementing first data rate on first channel being fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel being greater than fourteen and one tenths kilobits/seventy two per second. The motivation is that based on the channel conditions a system can choose any arbitrary data rate to transmit data i.e. a system either can send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload and this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth; thus making the transmission efficient and reliable. Furthermore, fourteen and one tenths kilobits/seventy two per second are arbitrary data rates that a system can choose for efficient transmission.

In regards to claim 62, Coverdale teaches first channel and second channel are one of: a fundamental channel, a first supplemental channel, a second supplemental channel, the same supplemental channel and the first supplemental channel (column 10 lines 11-20, Such a control channel will preferably operate in real-time or near real-time to minimize delays. The control channel should be defined as logically distinct from the streaming information (and should by-pass the transmit and receiver buffers). The control and streaming channels can be multiplexed on a single physical channel or use two distinct channels (e.g., fundamental and supplemental channel in cdma2000) with an increased bandwidth (column 9 lines 46-52, the streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth).

6. Claims 65- 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coverdale in view of Das, Kubota and Baba et al. (US PAT 7162247, hereinafter Baba).

In regards to claim 65, Coverdale teaches for use in a wireless network communications system, an apparatus for use in a mobile, apparatus comprising: a main controller (the controller 290); a replacement data packet acquisition application executable by main controller, replacement data packet acquisition application capable of acquiring at least one replacement data packet from a base station; and a

replacement data packet integration application executable by main controller, replacement data packet integration application capable of integrating at least one replacement data packet from base station into a data packet stream to replace one of: a missing data packet and an error data packet (column 7 lines 1-12, The controller 290 generates a retransmission request whenever it receives a notification from the FEC decoder 270 that a frame was received in error. This request is then transmitted via the radio frequency block 260 and the antenna 250 to the wireless network. The controller 290 waits for the retransmitted frame to be received and demodulated and error decoded. If the requested frame is received without error in time to replace the errored frame in the playback buffer 200, then the controller 290 replaces the errored frame with the received retransmitted frame, prior to delivery to the speech decoder 280. Otherwise, the controller preferably replaces the errored frame by interpolating the previous and succeeding frames prior to delivery to the speech decoder 280); wherein apparatus is capable of: receiving data packets from a base station on a first channel at a first data rate (column 5 lines 42-49, Speech frames are then transmitted to the wireless terminal. The speech frames received by the wireless terminal 140 are shown to include frames 141, 142, 143, 144, 145 and 146); sending a negative acknowledgment signal to base station that mobile station failed to correctly receive at least one data packet (column 6 lines 58-67, The terminal also includes a frame repeat request controller 290 which would typically include a microprocessor and associated memory for storing software instructions for controlling the terminal and for carrying out the method steps as disclosed herein. The controller 290 is notified of any

detected errors by the FEC decoder 270. The controller 290 also controls the delivery of the speech frames stored in the playback buffer 200 and also replaces frames in the playback buffer which were received in error. The controller 290 generates a retransmission request whenever it receives a notification from the FEC decoder 270 that a frame was received in error. This request is then transmitted via the radio frequency block 260 and the antenna 250 to the wireless network); receiving at least one replacement data packet from base station on a second channel (column 7 lines 1-12 and column 10 lines 20-30, The controller 290 waits for the retransmitted frame to be received and demodulated and error decoded. If the requested frame is received without error in time to replace the errored frame in the playback buffer 200, then the controller 290 replaces the errored frame with the received retransmitted frame, prior to delivery to the speech decoder 280. Retransmitted frames can optionally be transmitted as packets on a secondary channel, for example, the control channel, to quickly replace the errored frame without varying the normal transmission rate. In this case the transmitter will respond to retransmission requests by transmitting requested frames on the secondary channel and the receiver would monitor the secondary channel for the retransmitted frames). Converdate further teaches (column 9 lines 46-52), the streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth).

Coverdale does not specifically teach retransmitting data on the second data rate which is higher than the first data rate and after sending the acknowledgment signal apparatus is further capable of ceasing to send at least one replacement data packet on second channel.

Das in the same field of endeavor teaches transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted (page 5 lines 1-14). Das teaches (page 1 sections 0005-0007 and page 5 lines 1-14) data transmission from the base station to a particular receiver occurs when that receiver reports the highest calculated data rate to the base station. The following protocol is utilized in data transmissions. The base station transmits data to the receiver in time slot n at the calculated data rate. The receiver receives the data transmission and responds with an ACK/NACK message indicating to the base station whether the data transmission was successfully received, i.e., no errors, by the receiver. Specifically, if the data transmission is successfully received, the receiver responds with an acknowledgement or ACK. Otherwise the receiver responds with a negative acknowledgement or NACK. The ACK/NACK message is received by base station in time slot n+j, wherein j is some known time offset. Thus, the base station can determine that an ACK/NACK message was transmitted from a receiver to which data was transmitted j time slots prior to receipt of

the ACK/NACK message. If an ACK was received, the base station knows that the data transmission to the associated receiver was successful. If a NACK was received, the base station knows that the data transmission to the associated receiver was unsuccessful. In response to the NACK, the base station re-transmits, at the same data rate, the same data which was earlier transmitted. The base station further transmitting data to a receiver at a first rate; receiving from the receiver channel condition information and information indicating a non-successful receive of the data; determining a new rate for the retransmission of the data based on the received channel information; and retransmitting the data to the receiver. The data that is retransmitted is at a higher rate than the data that is transmitted.

it would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Coverdale's system/method by incorporating the steps of retransmitting data on the second data rate which is higher than the first data rate and stop transmission after successful ACK as suggested by Das. The motivation is that (as suggested by Das, page 1, section 0007) if the channel conditions improve between the time of the initial transmission and the re-transmission, in such scenario a higher data rate can be used for the efficient re-transmission during re-transmission period. Further motivation is that (as suggested by Coverdale, column 9 lines 46-52), the streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload and this allows for increasing the transmission rate if the overall traffic load

allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth; thus making the transmission efficient and reliable.

Coverdale and Das not explicitly teach a hand-off scenario i.e. during hand-off first source base station communicates to the mobile station via target base station and receives communication from the mobile station via target base station.

Kubota in the same field of endeavor teaches for use in a wireless network communications system, an apparatus during handing off, apparatus comprising: a first base station (figure 1 element 11 sub. 1) (capable of) sending data packets to a second base station (figure 1 element 11 sub. 2) on a first channel at a first data rate (page 1 section 0010, the downstream user information from mobile switching center 13 is transmitted via inter-base-station line 16 from first base station 11.sub.1 to second base station 11.sub.2); wherein second base station (is capable of) sending data packets to a mobile station on a second channel (page 1 section 0010, the downstream user information from mobile switching center 13 is transmitted via inter-base-station line 16 from first base station 11.sub.1 to second base station 11.sub.2, from which the downstream user information is also transmitted through a radio link to mobile station 17).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Converdale and Das' system/method by incorporating the steps of hand-off, i.e. source base station sending and receiving user information from the mobile station via target base station as suggested by Kubota. The motivation is that, hand-off is an integral part of wireless communication and implementing features in

an hand-off scenario is imperative to make a network reliable and user friendly. Although, Coverdale, Das and Kubota teach all the limitations of claim 65, the phrase, "capable of" does not require all of the details that follow it, in other words, the base stations of Coverdale, Das and Kubota do not require to explicitly show/do all the steps of limitations of the claims, as long as they are capable of doing the steps. The base stations in Coverdale, Das and Kubota's teaching have all the necessary components of a base station as it is known by one of ordinary skill in the art. That is, the base stations in Coverdale, Das and Kubota have encoders, transmitters, receivers, antenna, processors, memory etc. As such Coverdale, Das and Kubota's base stations are "capable of" doing all the steps of the any limitations of present claim if it is programmed and configured to do so. Applicants current claim is "capable of" stated limitations. It is not clear, whether, that capability is actually being implemented to perform the stated steps or merely saying that if programmed it will be "capable of" doing so.

Coverdale, Das and Kubota do not explicitly teach the data packets are received from both a first base station a second base station.

Baba in the same field of endeavor teaches when transitioning between base stations 1001 and 1002, mobile station 1003 may receive information from both base stations (column 9 lines 18-20).

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Coverdale, Das and Kubota' system/method by incorporating the steps of the data packets being received from both a first base station a second base station as suggested by Baba. The motivation is that (as suggested by

Baba, column 9 lines 20-22) this diversity reception permits greater signal integrity as, errors may be eliminated by comparing the received signals.

In regards to claims 67 and 68 Coverdale, Das, Kubota and Baba do not explicitly teach first data rate on first channel is fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel is greater than fourteen and one tenths kilobits/seventy two per second.

It would have been obvious to one who has ordinary skill in the art at the time the invention was made to modify Coverdale, Das, Kubota and Baba's system/method by incorporating the steps of implementing first data rate on first channel being fourteen and one tenths kilobits/seventy two per second and wherein second data rate on second channel being greater than fourteen and one tenths kilobits/seventy two per second. The motivation is that based on the channel conditions a system can choose any arbitrary data rate to transmit data i.e., a system either can send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload and this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth; thus making the transmission reliable and efficient. Furthermore, fourteen and one tenths kilobits/seventy two per second are arbitrary data rates that a system can choose for efficient transmission.

In regards to claim 66, Coverdale teaches first channel and second channel are one of: a fundamental channel, a first supplemental channel, a second

supplemental channel, the same supplemental channel and the first supplemental channel (column 10 lines 11-20, Such a control channel will preferably operate in real-time or near real-time to minimize delays. The control channel should be defined as logically distinct from the streaming information (and should by-pass the transmit and receiver buffers). The control and streaming channels can be multiplexed on a single physical channel or use two distinct channels (e.g., fundamental and supplemental channel in cdma2000) with an increased bandwidth (column 9 lines 46-52, the streaming manager can either send data at a rate either faster or slower, or even pause momentarily, depending on the traffic on the wireless channel as a means of avoiding overload. Thus, this allows for increasing the transmission rate if the overall traffic load allows extra bandwidth and decreasing the transmission rate if the overall traffic load is short of bandwidth).

Allowable Subject Matter

7. Claims 45 and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments see pages 19-23 of the Remarks section, filed 8/28/2007, with respect to the rejections of claims have been fully considered and are not persuasive.

Claims 42-54:

Applicant argues (page 21 paragraph 2) that claims 42 and 54 have been amended to add significant limitations from claims 43 and 55, respectively, indicated by the Examiner as allowable. Claims 42-48 and claims 54-60 are therefore believed allowable per the indication of allowable subject matter in the Office Action. However, Examiner respectfully disagrees with the assertion. Upon further review and search, a new ground of rejection to claims 42 and 54 has been presented in this office action.

Claims 37-41 and 49-53:

Applicant argues (page 21 paragraph 3) that Applicant has amended claims 37 and 49. Applicant's amendment necessitated a new ground of rejection presented in this office action.

Claim 61 :

Applicant argues (page 22 paragraph 1) that Applicant has amended claims 61 for clarification. Applicant's amendment necessitated a new ground of rejection presented in this office action.

Claim 65 :

Applicant argues (page 22 paragraph 2) that Claim 65 is allowable with no amendment. Claim 65 requires "the apparatus is further capable of receiving at least one replacement data packet from first base station and second base station on second channel at a second data rate, which is higher than first data rate" (emphasis added). No art of record teach or suggests that the replacement data packet can or should be received from both a first base station a second base station, as claimed. However,

Examiner respectfully disagrees with the assertion. Upon further review and search, a new ground of rejection to claim 65 has been presented in this office action.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is (571) 272-8307. The examiner can normally be reached on 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA
Salman Ahmed
Examiner
Art Unit 2619
10/30/2007

EDAN . ORGAD
SUPERVISORY PATENT EXAMINER
Edan Orgad